Logistics Enterprise Integration Advisory Board

Product Lifecycle Management Plus NetWeaver (PLM+)

PLM+

U.S.ARMY

Dr. Gulledge

Integrated Logistics Enterprise = Common Operating Picture

Product Lifecycle Management

- Private sector companies often have product managers for managing the product lifecycle from “cradle to grave.”
- The lifecycle includes R&D, engineering, production planning & control, manufacturing, distribution, maintenance, support, and return & disposal.
- All of the major enterprise software vendors support this Value Chain concept using an integrated solution approach called Product Lifecycle Management.

Project PLM & Enterprise PLM

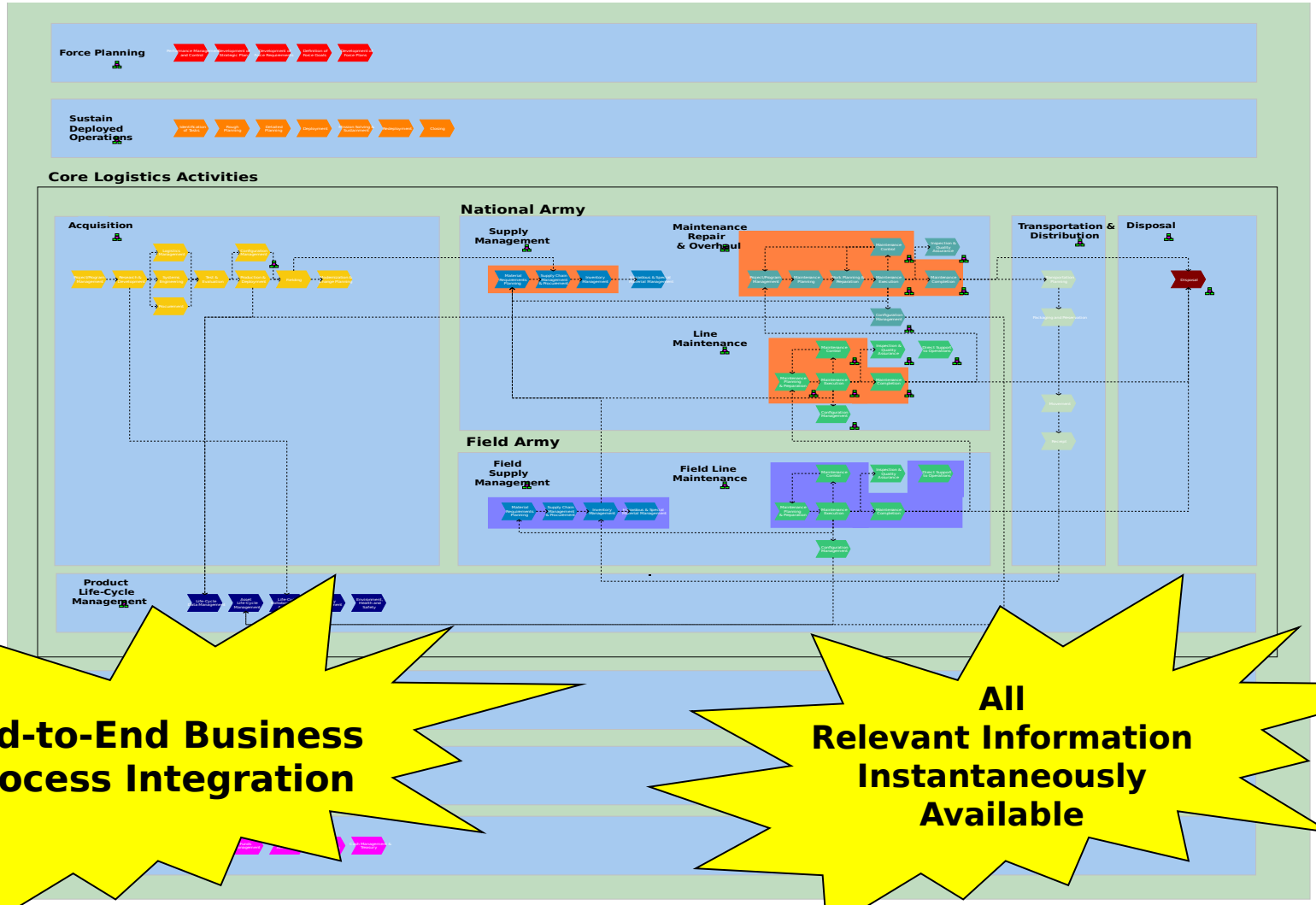
- Project PLM is supports the collaborative engineering design process.
  - For the Army, this is the relationship between the OEM and the Weapon System Program Office.
- Enterprise PLM supports the entire weapon system lifecycle, but primarily the sustainment business processes.
  - For the Army, this requires deep integration into the supply and maintenance business processes that are configured inside of SAP.

Army Logistics is Implementing Enterprise PLM

Presentation Objectives

- Present the Product Lifecycle Management (PLM) concept.
- Present the solution approach of SAP.
- Show how the SAP solution aligns with the Single Army Logistics Enterprise.

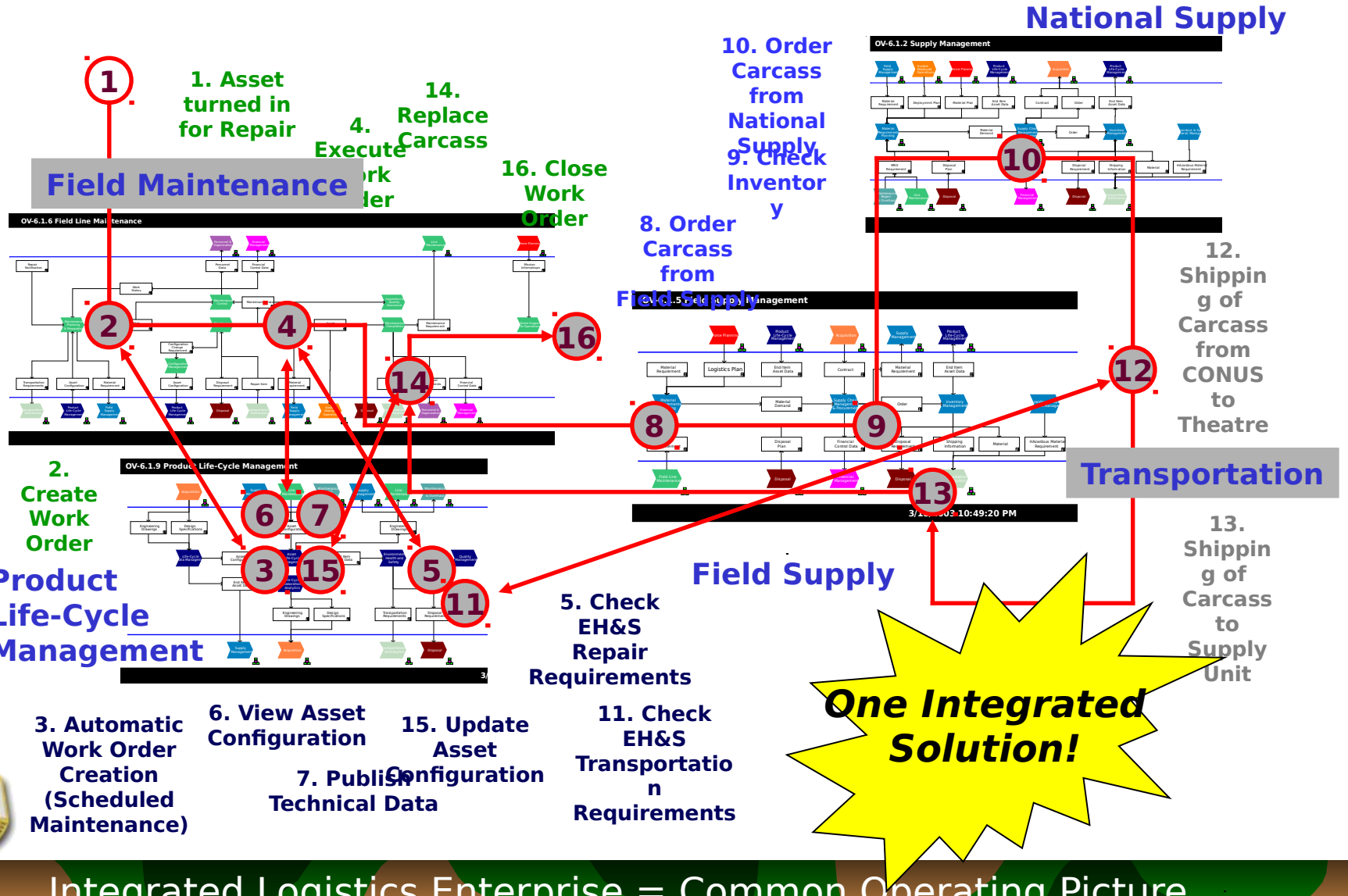
Example of a Product Lifecycle



End-to-End Business Process Integration

All Relevant Information Instantaneously Available

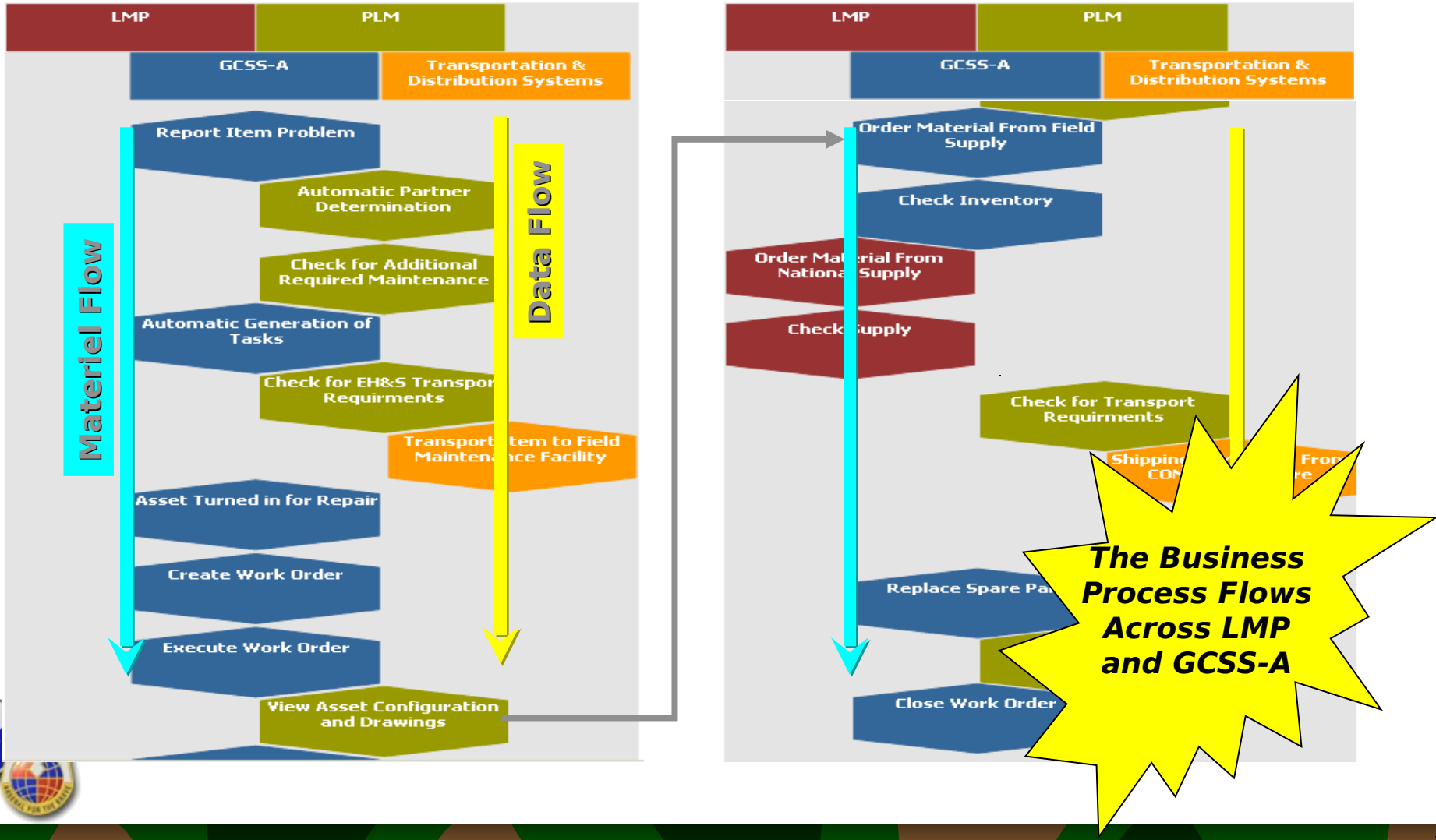
On a More Detailed Level


National Supply
10. Order Carcass from National Supply
9. Check Inventory
1. Asset turned in for Repair
14. Replace Carcass
4. Execute Work Order
16. Close Work Order
Field Maintenance
OV-6.1.6 Field Line Maintenance
OV-6.1.2 Supply Management
8. Order Carcass from Field Supply
12. Shipping of Carcass from CONUS to Theatre
Transportation
2. Create Work Order
Product Life-Cycle Management
OV-6.1.9 Product Life-Cycle Management
Field Supply
5. Check EH&S Repair Requirements
13. Shipping of Carcass to Supply Unit
3. Automatic Work Order Creation (Scheduled Maintenance)
6. View Asset Configuration
15. Update Asset Configuration
7. Publish Technical Data
11. Check EH&S Transportation Requirements
One Integrated Solution!

Important Point

- PLM is most effective when it is implemented as part of a larger enterprise solution.
- Companies like SAP have a distinct competitive advantage, since they provide true integration with core maintenance and financial business processes.

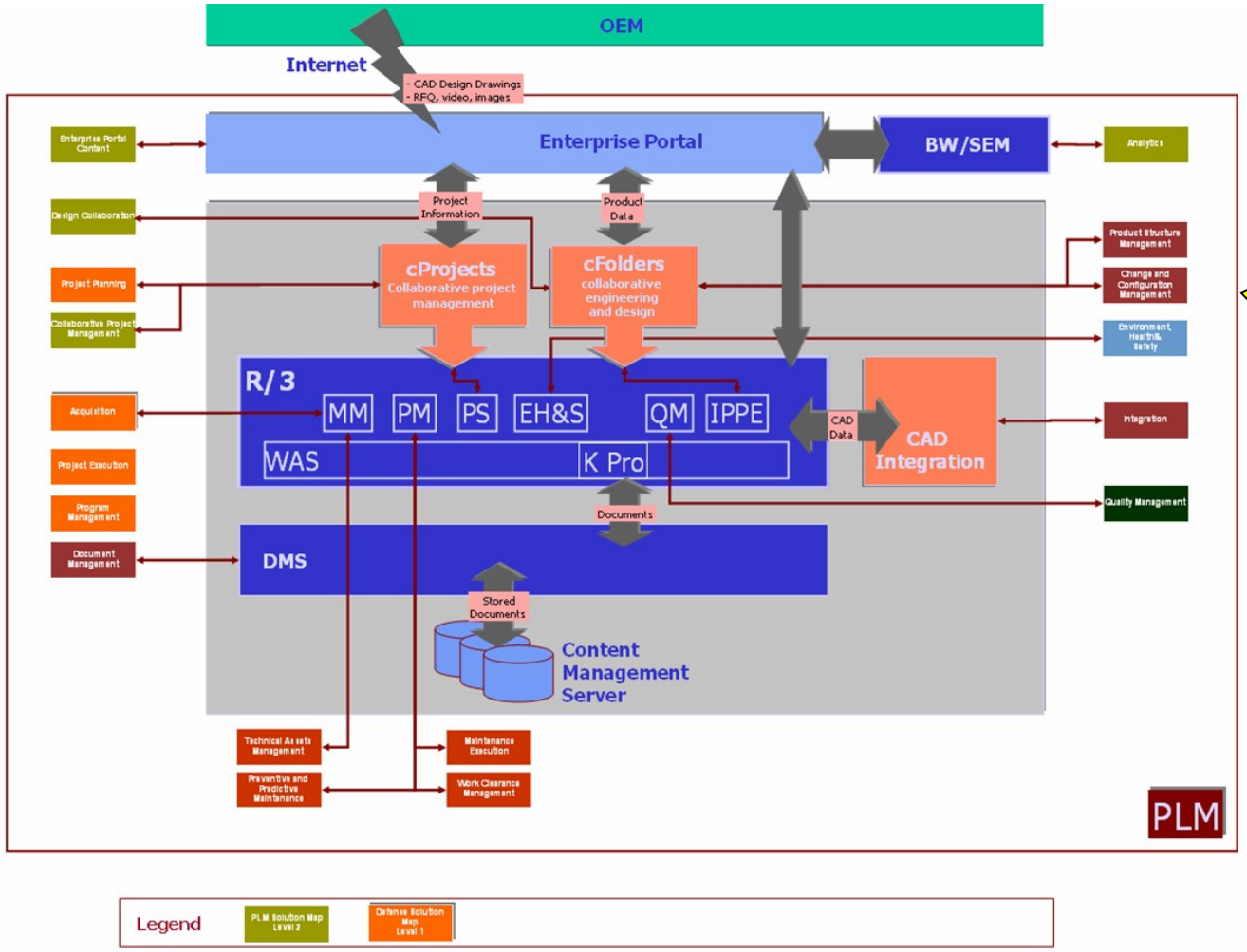
PLM is Focused on Data Flowing Through Business Process Scenarios



PLM Focuses on Information Provision

- The scenario flow describes the collaboration among different organizations while repairing a defected item.
- PLM business process activities are concerned with the preparation, collection and distribution of the information required by the different parties in order to complete their tasks.

SAP Provides an Integrated PLM Solution



Proprietary Interfaces Minimized

The Function View

Life-Cycle Data Management	Document Management	Product Structure Management	Recipe Management	Integration	Change and Configuration Management
Asset Life-Cycle Management	Technical Assets Management	Preventive and Predictive Maintenance	Maintenance Execution	Work Clearance Management	
Program and Project Management	Project Planning	Project Execution	Interfaces	Program Management	
Life-Cycle Collaboration and Analytics	Design Collaboration	Collaborative Project Management	Quality Collaboration	Analytics	Enterprise Portal Content
Quality Management	Audit Management	Quality Control	Quality Improvement		
Environment, Health and Safety	Basic Data and Tools	Product Safety	Hazardous Substance Management	Dangerous Goods Management	Waste Management	Industrial Hygiene and Safety	Occupational Health

PLM+ Solution Functional and Business Process Scope

PLM Processes		Phase 1 (04/05) *	Phase 2 (06/08) **
Main Process	***FUNCTIONALITY***		
Life-cycle data management			
	Document Management		
	Product Structure Management		
	Recipe Management		
	Integration		
	Change and Configuration Management		
Asset life-cycle management			
	Technical Asset Management		
	Preventive and Predictive Maintenance		
	Maintainace Execution		
	Work Clearance Management		
Program/Project management			
	Project Planning		
	Project Execution		
	Interfaces		
	Program Management		
Life-cycle collaboration and analytics			
	Design Collaboration		
	Collaborative Project Management		
	Quality Collaboration		
	Analytics		
	Enterprise Portal Content		
Quality management			
	Audit Management		
	Quality Control		
	Quality Improvement		

PLM Processes		Phase 1 (04/05) *	Phase 2 (06/08) **
Main Process	***SCENARIO***		
Life-cycle data management			
	PLM Data Replication in a Distributed Environment		
	Document Management		
Asset life-cycle management			
	Condition-Based Maintenance		
	Condition-Based Maintenance with Calibration Inspections		
	Mobile Inspections		
	Optimizing Asset Effectiveness		
	Outsourcing Maintenance Services		
	Recording Inspection Results on WWW		
	Spare Parts Management		
	Refurbishment Process		
	Fleet Management		
Program/Project management			
	CAD-Driven Design Process		
	New Product Development		
	Procurement of New Equipment		
	Project Management for R&D		
	Cross-Department Completion Confirmation		
	Process Engineering		
Life-cycle collaboration and analytics			
	Engineering Change Management		
	Collaborative Engineering with cFolders		
	Request for Permission of Deviation		
	Order Change Management (OCM)		
Quality management			
	Exchanging Quality Certificate Data		
	Quality Certificate for Delivery on WWW		

lected weapon system and users/organizations within the scope of phase 1
r the rest of the weapon systems

PLM Extension Set

- SAP PLM is an Extension Set to the R/3 Core.
- SAP PLM is an integrated solution.
- PLM is an Extension Set of the LMP National Solution

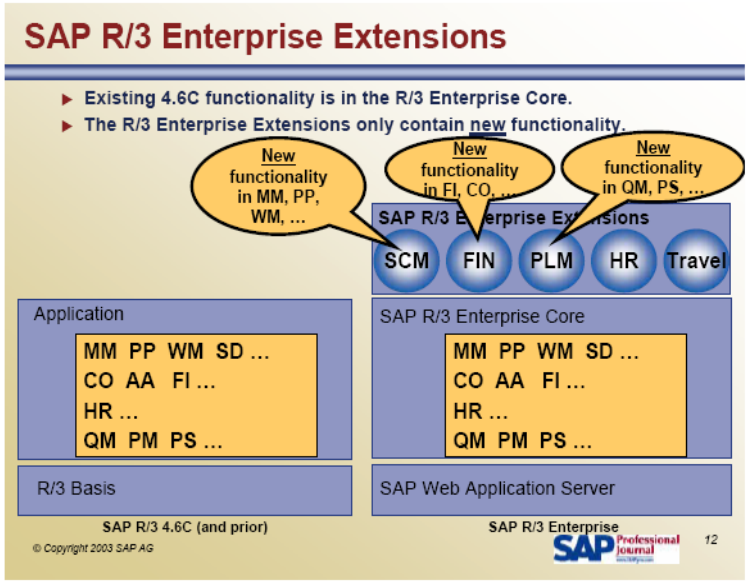
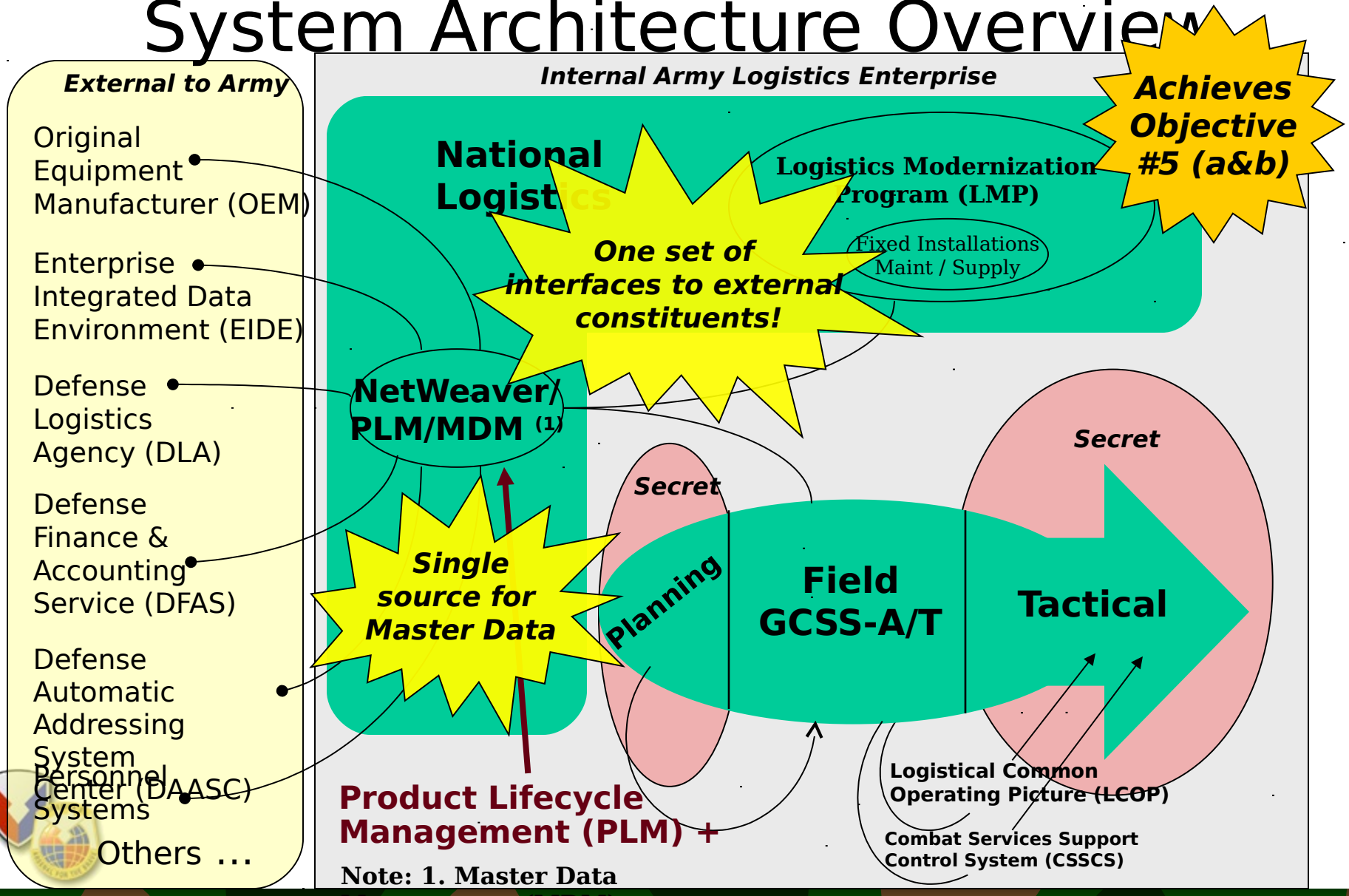


Figure taken from a presentation by Tom Olds (SAP America) at the R/3 Enterprise for Managers Conference, 2003

PLM Extends the Technical Data that is Loaded in the LMP Solution!

The SALE Architecture and PLM

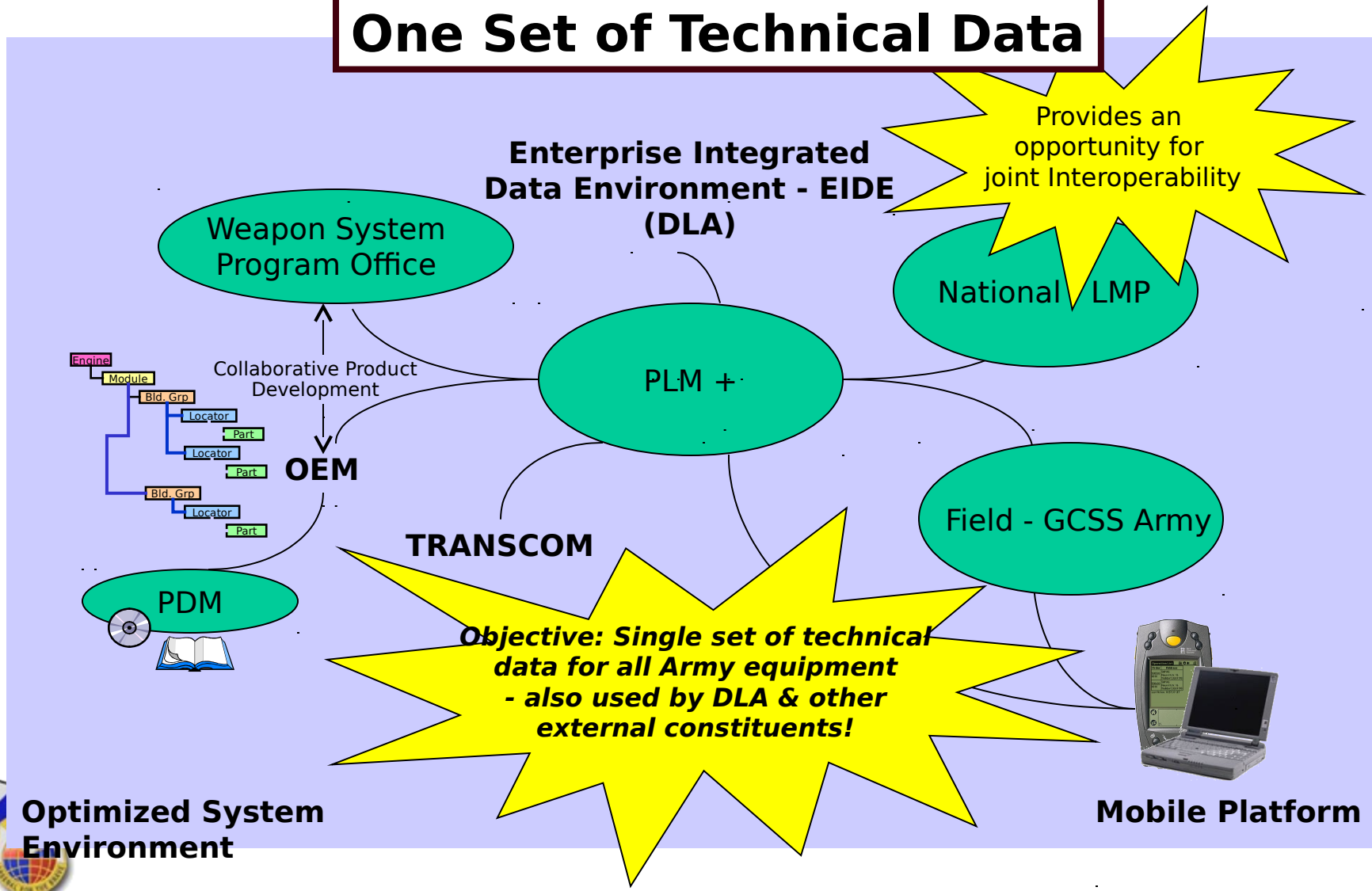
High Level Logistics System Architecture Overview



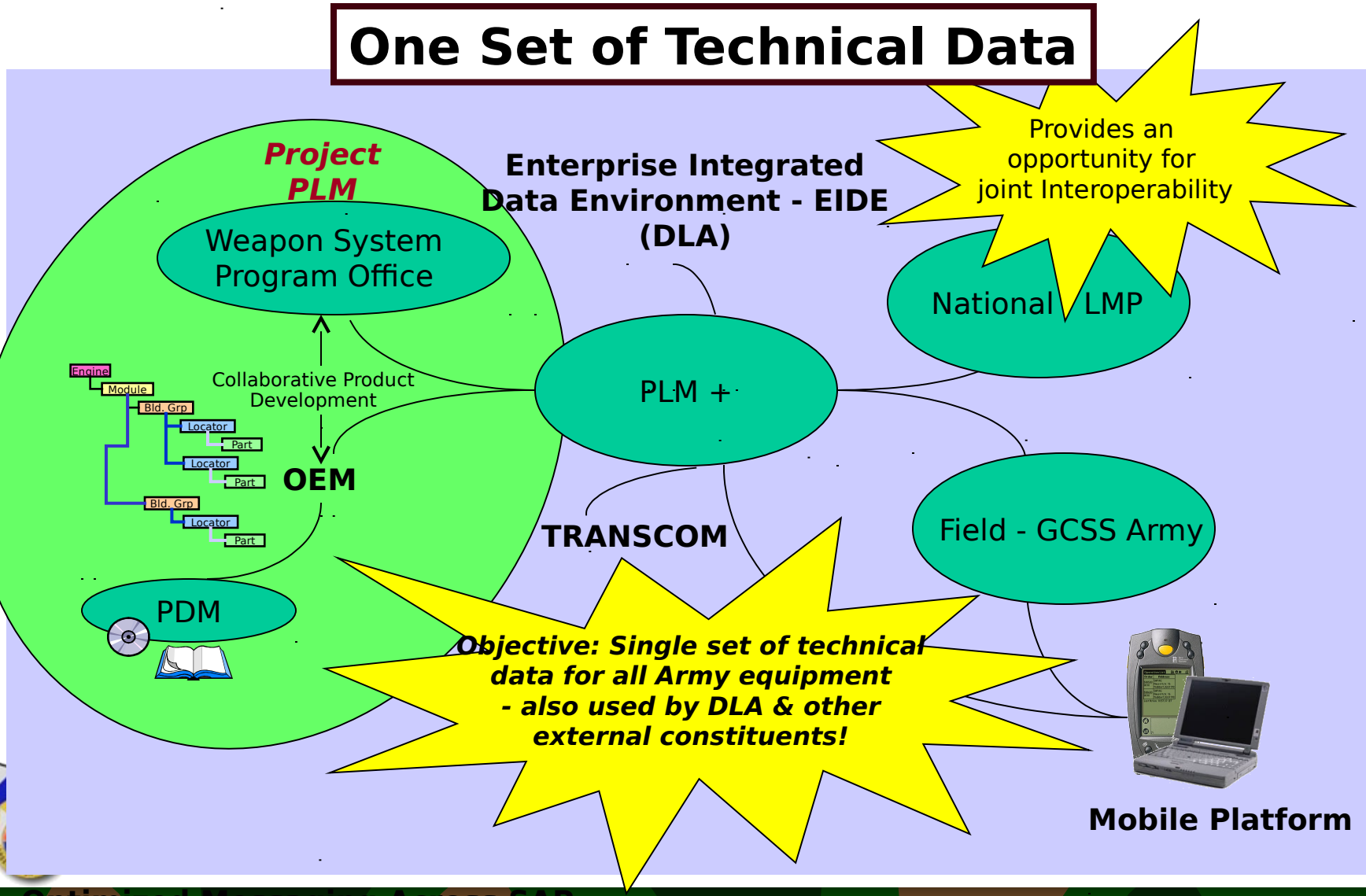
Integrated Logistics Enterprise = Common Operating Picture

Army Logistics Landscape

One Set of Technical Data



End-to-End Technical Data Integration



The Key Role of Technical Data

- The Army desires a single set of technical data for all Army equipment that is also used by DLA and other external constituents.
  - The primary responsibility for product data management resides at the Original Equipment Manufacturer (OEM), while the Army retains responsibility for managing technical data in support of internal business processes.
- The PLM solution provides technical data integration with existing Army programs to avoid Army-to-Army interfacing.
- A single point of technical data entry for external constituents, including the OEMs.
- Master data management at a single Army hub.

Technical data is the “glue” that holds GCSS-A and LMP together

PLM
+
=

Exchange Infrastructure (XI)

+

Master Data Management (MDM)

+

Product Life Cycle Management (PLM)

Master Data Management (MDM)	**Product Life-cycle Management (PLM)**
Exchange Infrastructure (XI)	
Event Manager, Business Warehouse, Strategic Enterprise Management	

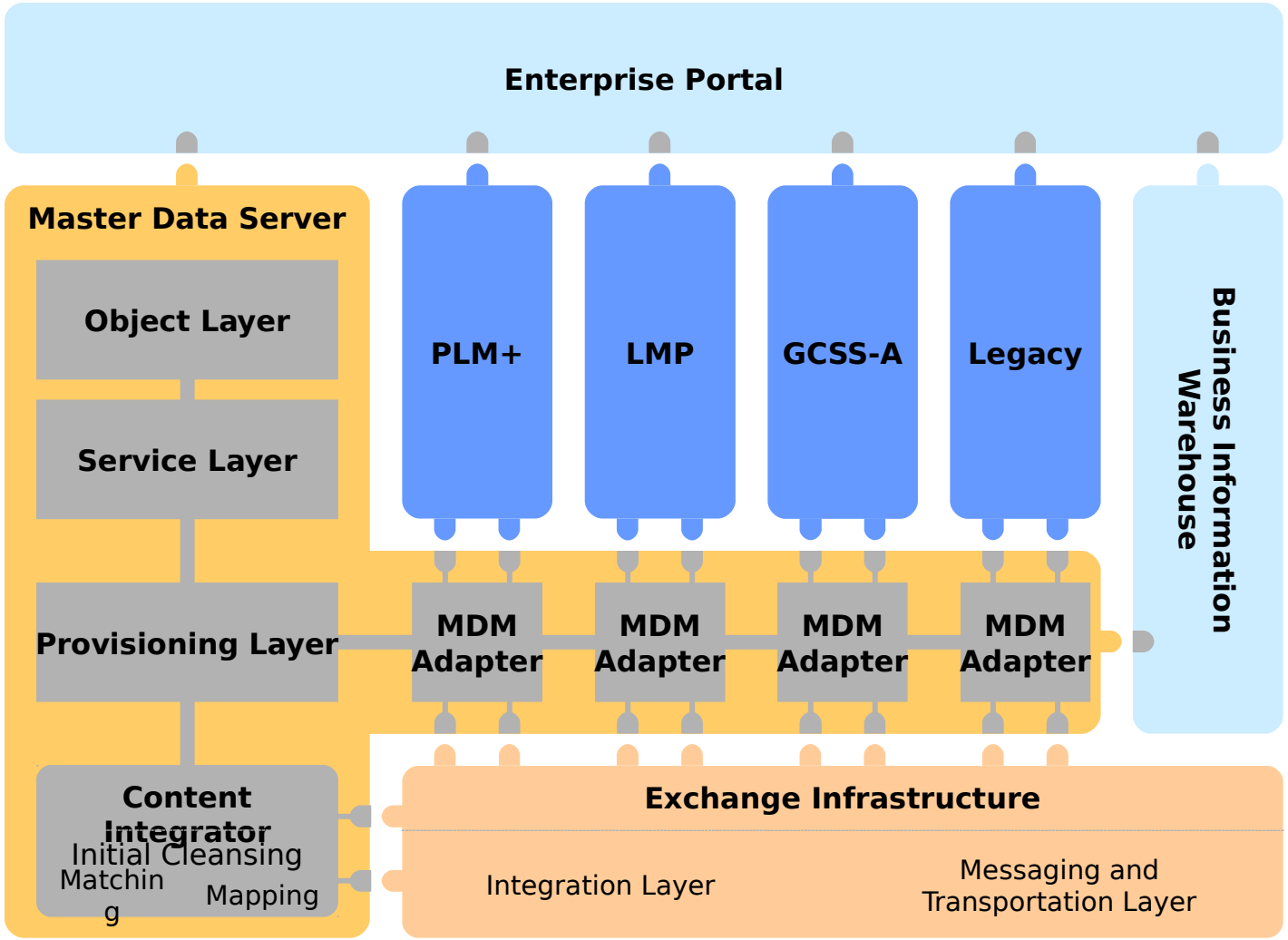
- **Optimized Messaging (SAP to SAP)**
- **Enterprise Application Integration (SAP to Non-SAP)**
- **Translation (High Volume)**
- **Web Services**

- **Content Consolidation**
- **Master Data Harmonization**
- **Central Master Data Management**

- **Product Data Management**
  - **Document Management**
  - **Product Structure Management**
  - **CAD Integration**
  - **Change& Configuration Management**
- **Asset Life-Cycle Management**
  - **Technical Assets Management**
  - **Preventative & Predictive Maintenance**
  - **Maintenance Execution**
  - **Work Clearance Management**
- **Collaboration & Analytics**
  - **Design Collaboration**
  - **Collaborative Project Management**
  - **Quality Collaboration**
  - **Enterprise Portal Content**
  - **Analytics**
- **Environmental, Health, and Safety**
- **Quality Management**

All Relevant Data Instantaneously Available!

System Component Landscape



Army Solution Overview

- Biased towards integration – leverages the Army's investment in SAP.
- Focused on a PLM solution; not PDM, which is the primary responsibility of the weapon system OEM.
- PLM integrates EH&S and core enterprise business processes.
- Includes technical document management as an integrated solution.

Summary

- **PLM+ is recognized by the Army as critical part of the logistics architecture**
- **Management constructs are being established b the Army**
- **Team effort will be required working with PEO's, PM's, Logisticians and other personnel**